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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/919,679	08/01/2001	Juliana H.J. Brooks	BLP:101 (a) US-CIP	6650

7590 11/30/2004

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EXAMINER

HANLEY, SUSAN MARIE

ART UNIT	PAPER NUMBER
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1651

DATE MAILED: 11/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/919,679

Applicant(s)

BROOKS ET AL.

Examiner

Susan Hanley

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 October 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Susan Hanley is now the examiner for this application. Her contact information appears at the end of this Office action.

Response to Amendment

Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

The amendment filed 10/8/2004 has not been entered because it was submitted in an improper format according to the Revised Amendment Practice, 37 C.F.R. 1.121, which applies to amendments filed on or after July 30, 2003. Specifically, the amendment is improper because when there is any amendment to a claim, a claim listing of all claims ever presented in the case must be supplied in ascending numerical order.

Election/Restrictions

The species election is withdrawn and claims 1-15 have been examined.

Response to Arguments

Applicant's arguments, filed 10/8/2004, are moot upon further consideration of new grounds of rejection.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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Claims 13-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 13 is rejected because there are two separate steps that are identified as "(b)". The first instance of step (b) recites "at least one harmonic frequency of an electromagnetic pattern ..." and the second instance of step (b) recites "exposing said chemical...". This is confusing because it is unclear which step precedes the other.

Claim Rejections - 35 USC § 102

Claims 1-4, 7-13 and 15 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Lichtin et al. (US 4,861,484).

Lichtin et al. disclose a method to degrade organic materials into environmentally compatible products comprising the irradiation or excitation of a transition element in a solid state with photoenergy in a reaction system that includes the organic material to be degraded and a peroxide (Lichtin patent, abstract). The photoenergy is added to the reaction mixture at wavelengths absorbable by the transition element catalyst which are most effective in enhancing the activity of said catalyst (Lichtin patent col. 12, lines 40-45). This disclosure meets the limitations of claims 1, 13 and 15 because the step comprising the determination of the wavelengths most effective in enhancing the activity of the catalyst is equivalent to the instant claim 1, step (a) of determining an electromagnetic spectral pattern of the catalyst and the determination of said optimal wavelengths inherently copies a mechanism of action of the catalyst, as in claim 15. Lichtin et al. also anticipate steps (b) and (c) of instant claim 1, as well as steps (a) and (b, second incidence) of claim 13, because the wavelength that is most effective for enhancing catalyst activity is used, i.e. duplicated, to irradiate the catalyst and the chemical reaction system such that the photoenergy provides increased yields of organic material degradation in comparison to those yields obtained by conventionally known processes (Lichtin patent, col. 12, lines 55-60). The disclosure by

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Lichtin et al. drawn to the use of a transition metal meets the limitations of instant claim 2 drawn to a catalyst comprising a metal. Lichtin et al. teach that the metal catalyst can be platinum, which satisfies instant claim 9 and the elected specie (Lichtin patent, Table III). The Lichtin patent discloses that the photoenergy used to determine the optimal frequencies to irradiate the catalyst is defined as electromagnetic radiation of any wavelength and that UV or visible light is preferred as required by instant claims 4 (drawn to irradiation in the UV range), 3 and 8 which are drawn to UV spectroscopy to determine the desired wavelength. Lichtin et al. teach that water can be purified by combining polluted with a solid catalyst and peroxide to form a reaction mixture. The reaction mixture components are then simultaneously irradiated to products potable water (col. 7, lines 4-15). This disclosure meets the requirements of claims 7 and 12 which are drawn to the combination of the catalysts prior to or substantially simultaneously with irradiation.

Claims 1, 3, 4, 7, 8 and 10-15 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Pratt, Jr. (US 4,115,280).

Pratt discloses a method of activating macromolecular species, such as enzymes which are catalysts, comprising subjecting an enzyme-containing reaction mixture to laser radiation at a frequency that excites the vibrational and rotational state of said enzyme. Pratt teaches that the frequency and the amplitude of the laser output radiation is controlled to selectively affect the macromolecular catalyst (col. 10, lines 20-35). The employment of a laser meets the limitation of instant claim 10. The wavelength for irradiation is determined by subjecting said macromolecule to laser radiation and measuring the scattered or transmitted or reflected radiation as a function of frequency amplitude (col. 11, lines 60-68). This disclosure meets the limitations of claims 1, 13 and 15 because the step comprising the determination of the wavelength most selectively enhances the activity of the enzyme is equivalent to the instant claim 1, step (a) of determining an electromagnetic spectral pattern of the enzyme and the determination of said optimal wavelength inherently copies a mechanism of action of the catalyst, as in claim 15. Pratt also

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anticipate steps (b) and (c) of instant claim 1, as well as steps (a) and (b, second incidence) of claim 13, because the wavelength that is most effective for enhancing catalyst activity is used, i.e. duplicated, to irradiate the catalyst and the chemical. The radiation frequency for activation the catalyst can be in the Raman scattering range (Pratt patent, col. 7, lines 25-60) which meets the limitation for the spectroscopy method of instant claims 3, 4 and 8. The selectivity of the frequency control can be enhanced by non-linear coupling of vibrating molecule of the species to the electromagnetic field (Pratt patent, col. 9, lines 60-68 to col. 10, lines 1-2). Enhancing the catalytic activity by controlling non-linear coupling vibrations of the catalyst is equivalent to employing at least one harmonic frequency of said catalyst as required by claim 13, part (b), first instance. Pratt discloses that the catalyst can be irradiated before, simultaneously or after combination with the reactant system (Pratt patent, col. 3, lines 32-40 and col. 11, lines 17-60), which meets the reaction order limitations of instant claims 7, 11 and 12.


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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susan Hanley whose telephone number is 571-272-2508. The examiner can normally be reached on M-F 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Wityshyn can be reached on 571-272-0926. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Susan Hanley
Examiner
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JEAN C. WITZ
PRIMARY EXAMINER